

Technical Information



Triumph PET/SPECT/CT system

TriFoil Imaging

Location address:

CIBM PET HUG-UNIGE

Small Animal Preclinical Imaging Platform (PIPPA)

HUG, BatLab, 9N-6-204

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Description

The Triumph PET/SPECT/CT system by Trifoil Imaging is an advanced imaging solution designed for preclinical research models imaging (e.g. eggs, mice, rats, small rabbits). This cutting-edge system combines three essential imaging modalities - positron emission tomography (PET), single-photon emission computed tomography (SPECT), and computed tomography (CT) - into a single platform, enabling multimodal, comprehensive and detailed imaging of biological processes. Digital detector technology for PET (Avalanche Photo Diode) and SPECT (Multiplexed Multi-Pinhole CTZ) delivers high resolution and high contrast images.

Specifications

- **Multimodal Imaging: PET/SPECT/CT and MRI** (NanoScan MRI 3T, PIPPA) thanks to systems and animal beds inter-compatibility
- **Integrated physiological monitoring system for ECG, respiration, and temperature**
- **Cardiac and respiratory gating**
- **3-mice bed for improved imaging workflow**
- **PET features:**
 - Static and dynamic tomographic acquisitions
 - Spatial Resolution: 1 mm, axial field-of-view: 7,5 cm
 - CT based attenuation correction
- **SPECT features:**
 - Planar static, planar dynamic, tomographic (SPECT), dynamic SPECT acquisitions
 - Wide gamma-ray energy range of 25-250 keV to cover a variety of isotopes (e.g. 99mTc, 123I, 125I, 201Tl, and 111In) and multiplexed imaging
 - Spatial resolution: 500µm, spatial sensitivity: up to 6,500 cps/MBq

- Low energy high resolution and sensitivity
- CT based attenuation correction
- **CT features:**
 - Spatial resolution: 80 μ m
 - Delivered X-ray dose < 2 cGy

Additional related infrastructure

- HUG cyclotron and radiochemistry laboratory for radiopharmaceuticals production and developments
- Classified type-C working zone according to the Swiss Federal Radiological Protection Ordinance
- Specific-Pathogen-Free (SPF) compatible environment and workflow
- Separated mice and rats housing for radiation decay
- Animal preparation and surgery room
- Accessibility to UNIGE PIPPA preclinical 3T MRI (NanoScan, Mediso), high-resolution CT (Quantum GX, PerkinElmer) and Optical Imaging (IVIS spectrum, PerkinElmer) systems.

Software

- Imalytics Preclinical, Gremese-it GmbH, Aachen, Deutschland
- VivoQuant™, Invicro, Needham, MA, USA
- Horos™, Horos Project, open source medical image viewer, www.horosproject.org